

# Ultrasound Guides Intra-Articular Injections

BY BRUCE JANCIN

SNOWMASS, COLO. — You may be confident that you've got great hands for performing joint injections and aspirations, but the scientific evidence shows that unless you're using sonographic needle guidance, you're not nearly as good as you think.

Numerous studies have demonstrated that even skilled rheumatologists and orthopedic surgeons fail to place their needle tip in the intra-articular space 50%-60% of the time when they use palpation to guide injections, Dr. Eric L. Matteson said at a symposium sponsored by the American College of Rheumatology.

To make his point, Dr. Matteson cited data from a recent multicenter randomized trial involving ultrasound- or palpation-guided intra-articular steroid injections of 148 painful joints (mostly knees, wrists, shoulders, hips, elbows, wrists, and ankles). The ultrasound-guided group had 44% less procedural pain and a 59% greater reduction in pain at the 2-week follow-up than did the palpation group. Sonographic needle guidance also resulted in a 337% increase in the volume of aspi-

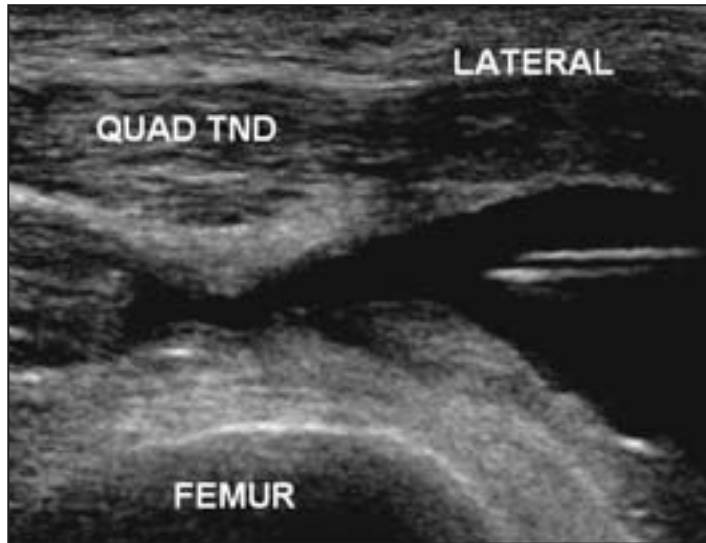
rated fluid (J. Rheumatol. 2009;36:892-902).

"There's no question that ultrasound-guided injections are more accurate in certain joints, such as the deeper joints like the hips, the small joints of the hands, and the subacromial bursa," said Dr. Matteson, professor of medicine and chief of the division of rheumatology at the Mayo Clinic, Rochester, Minn.

As a practical matter, he is quick to turn to ultrasound guidance in patients who are obese, have failed prior injections or aspirations, have experienced significant pain with prior injections, or have difficulty assuming the proper position for standard injections.

Since taking up musculoskeletal ultrasound half a decade ago, Dr. Matteson said he has become a huge fan. He uses it not only to guide procedures, but also as a dynamic extension of his clinical examination. Dr. Matteson reported that in his experience, musculoskeletal ultrasound is of great assistance in the diagnosis of tendon ruptures, synovitis and tenosynovitis, bursitis, effusions, soft tissue nodules, erosions, and the assessment of disease activity.

The use of office ultrasound



Ultrasound shows synovial fluid (black) with needle approaching from right in a knee aspiration in an obese patient.

COURTESY DR. ERIC L. MATTESON

to assess the hip joint is particularly noteworthy. This assessment is something that otherwise would often require a referral to radiology.

Another area in which musculoskeletal ultrasound has been a real breakthrough is in assessing the cause of shoulder pain. Ultrasound can readily visualize impingement, biceps tendon dislocation, acromioclavicular and sternoclavicular joint pathology, synovitis, and bursitis, as well as adhesions, calcifications, and rupture of the rotator cuff.

"Here I think ultrasound is a great boon to us in our practice. Assessing causes of shoulder pain is really a fantastic application," he continued.

Patients love seeing their anatomy on the ultrasound screen; it turns their office visit into an educational experience, according to Dr. Matteson. Musculoskeletal ultrasound is a great teaching tool for medical professionals, as well.

"It's something that creates excitement among the fellows and medical students and residents who rotate through," he said.

Indeed, a move is afoot to develop a curriculum for rheumatology fellows that will enable them to demonstrate competence in the technique.

Musculoskeletal ultrasound is rather well reimbursed under CPT billing codes 76880 and 76942, which were set by radiologists. Although it's possible to spend \$100,000-\$200,000 on an ultrasound machine, doing so is entirely unnecessary. A very good machine can be purchased for \$40,000. The major equipment manufacturers typically sell demonstration models after a year's light use for considerably less.

Ultrasound probes that cover 5-13 MHz best serve rheumatologists' purposes, providing the required balance between penetration and resolution that permits the imaging of both deep structures like the hip and superficial ones like fingers.

The U.S. rheumatologist ultrasound interest group is reachable at [www.msk-uss.org](http://www.msk-uss.org). ■

**Disclosures:** Dr. Matteson indicated he has no relevant financial interests.

To view an interview with Dr. Matteson, go to [www.youtube.com/rheumatologynews](http://www.youtube.com/rheumatologynews).

## RAID Score Aims to Quantify RA's Impact on Patients' Lives

BY DIANA MAHONEY

By collapsing seven health domains into one composite index, the patient-derived Rheumatoid Arthritis Impact of Disease score "allows easy assessment of the patient's perspective both for clinical trials and practice," according to Dr. Laure Gossec of Hôpital Cochin in Paris.

The Rheumatoid Arthritis Impact of Disease (RAID) scoring system is designed to measure the impact of rheumatoid arthritis (RA) on patients' lives. The score contains components to assess perceived pain, functional disability, fatigue, emotional well-being, physical well-being, sleep disturbance, and coping. The RAID score is meant to enhance the assessment of disease status, progression, and treatment response obtained through existing disease-activity and composite indices. In essence, it is an attempt to quantify the experience of living with RA, Dr. Gossec explained in an interview.

To develop the composite response index, the principal investigators convened a steering committee comprising rheumatologists from 10 European countries along with 10 RA patients from each of the countries. Through a series of focus group sessions, the committee

identified 17 areas of health that would be relevant for inclusion in the score based on an extensive literature review and the patients' personal experience, Dr. Gossec and her associates explained (Ann. Rheum. Dis. 2009;68:1680-5).

### VITALS

**Major Finding:** Based on a composite index for measuring the impact of RA, pain ranked highest at 21% followed by functional disability at 16% and fatigue at 15%.

**Data Source:** Rankings from 100 patients, 10 patients in 10 countries, on the Rheumatoid Arthritis Impact of Disease scoring system.

**Disclosures:** The investigators reported no relevant disclosures.

To reduce the number of domains that would be included in the final outcome measure, the steering committee devised a ranking strategy whereby 100 patients with RA (10 from each country) were asked to rank the domains on a 1-17 scale, with 1 being the most important and 17 being the least important, from their own disease experience, according to the authors. "The seven highest-ranked domains were retained in the RAID score," they wrote.

To determine the relative importance of the top seven health domains, an additional 505 RA patients (approximately 50 from each country) were asked to distribute 100 points across the domains according to their relative impact.

Based on these rankings, mean and median ranks were computed for the entire group of patients and linearly transformed to a 0-100 range, which became the basis for the final weights, the authors reported.

The mean age and disease duration of the patients participating in the weighting process was 56 years and 15 years, respectively. Additionally, the group's mean Health Assessment Questionnaire (HAQ) score was 1.23, the authors wrote. The relative ranked weights of the seven health domains for aggregation into a composite score were 21% for pain, 16% for functional disability, 15% for fatigue, and 12% each for emotional well-being, sleep, coping, and physical well-being, they stated.

"The final selection of domains is in keeping with the published qualitative literature as pain, functional disability, and fatigue appear to be of utmost importance to many patients and were the first three domains in the ranking process," they noted.

An analysis of the domain rankings by

country determined that the patient-perceived impact of RA was similar across different countries, as well as across different patient and disease characteristics, both of which strengthen "the relevance and generalisability of the preliminary RAID score," the authors wrote.

To measure each of the candidate domains, the steering committee, principal investigators, and two external experts selected a simple question and, when possible, a more complete validated instrument or questionnaire.

Because not all of the patient-prioritized domains are easy to measure—well-being, for example, is not readily assessable—the group elaborated specific questions, and because some domains (such as functional disability) lacked a consensus regarding which of the multiple available questionnaires was most appropriate, more than one instrument was included, the authors wrote.

"In all, 12 instruments were selected for the seven domains," they said, noting that the final choice of one instrument per domain will be made after ongoing validation study of the RAID score.

The measure is currently being implemented in at least three ongoing clinical trials and at least one cohort, said Dr. Gossec. ■